

The Potential Barriers to Persistence and Development of Small Scale Coppice Forest Management in Europe

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This paper is based on original research into the factors influencing coppice management carried out during the COST Action FP1301 *EuroCoppice: Innovative management and multifunctional utilization of traditional coppice forests – an answer to future ecological, economic and social challenges in the European forestry sector*. This involved several Working Groups, with WG5 focusing on governance issues and the role of the people who make decisions affecting coppice forests. These range from policy makers, at national

and European level, to woodland owners and managers and those who make commercial decisions, woodland workers, processors and purchasers. A complex interplay of factors was revealed, with significant differences between countries.

The contents of this paper provided a basis for a presentation by Debbie Bartlett at the IUFRO 125th Anniversary Congress in the Session 82a “Traditional coppice: ecology, silviculture and socio-economic aspects”.

1 INTRODUCTION

Coppice is considered to be the oldest form of sustainable forest management and is still abundant with an estimated resource of more than 20 million hectares of forest currently managed as coppice across Europe and even more was formerly managed in this way. In the past roundwood was important, particularly for fuel, but, from early in the 20th century the most prevalent form of management changed to favour high forest systems, driven by increased use of fossil fuels, demand for larger timber and advances in technology. As a result, many coppices were converted to high forest, over planted or abandoned. There has been a resurgence of interest in coppice management as a component of sustainable forest management and it is increasingly recognised that coppice provides a diverse range of products and services of value to society.

The COST Action FP1301 EuroCoppice set out to consider how this traditional practice could be developed into a modern multifunctional system to increase the benefits from this currently under-utilised resource with representatives from member states contributing to different working groups to consider how this could be achieved. This paper has been produced by members of Working Group (WG) 5, “Ownership and Governance” who had the task of looking at potential barriers to increasing coppice management and how these could be overcome. The first step towards achieving this goal was to find out the current situation regarding coppice management in the countries involved in the Action.

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2 METHOD

Research began with a focused discussion between WG5 members at the first EuroCoppice conference, held in Florence, Italy, in February 2014. Data gathering began at the second conference, held in England in November 2014, entitled ‘People and Coppice’¹. This brought together academics and practitioners to explore the issues for different stakeholders, stimulating discussion of the differences and similarities between countries. All the delegates were asked to engage in participatory exercises during the event to provide information about coppice management by country.

2.1 Data collection at the ‘People and Coppice’ conference

All delegates were asked to identify the key issue(s) for coppice in their country on a flip chart as part of the registration process, before the formal conference events began. The rationale was to begin to get an overview of what the barriers to development in the sector might be.

The conference was organised into three sessions: the coppice resource, access to this resource, and the people involved. There were speakers from the government agencies concerned with policy and implementing legislation, the perspectives of different ownership groups (traditional large estates as well as small woodland owners) and – perhaps unusually – from woodland workers and processors. Everyone attending was given a form listing all the talks and with spaces for comments to be filled in after each presentation. These were not completed by all delegates but a significant amount of data was generated and analysed.

2.2 The Fact Sheet

Working Group 5 members collaborated to produce a ‘Fact Sheet’ exploring in depth the socio-economic issues and providing the context for coppice forest management in Croatia, England, Germany, Italy, Serbia and Spain (EuroCoppice Working Group 5, 2017; see the previous article of this volume, ‘Socio-Economic Factors Influencing Coppice Management in Europe’ for an updated version of this document). Analysis of these six examples provided information on some of the constraints and opportunities that apply when considering the way forward to develop a modern, multi-functional, coppice sector.

2.3 Modelling future scenarios

A Short Term Scientific Mission (STSM), funded by the COST Action FP1301 EuroCoppice, enabled a member of WG5 to study the potential for using Agent Based Modelling (ABM) as a tool to explore the relative importance of different factors affecting coppice (Gomez-Martin 2017). ABM uses computational models to simulate the actions and interactions of autonomous agents between themselves and the environment. They can be used to predict the likely effect of any action, or changes in interaction(s), on a system (Bonabeau 2002). Once the structure of a complex system has been accurately captured then the model can be manipulated to stimulate the dynamic evolution of actions over time. This approach has been receiving increasing attention as a tool in land use decision-making and environmental management, as it has the capacity to dynamically link social and environmental processes (Matthews et al., 2007).

¹ For details, including presentations, please see <https://www.eurocoppice.uni-freiburg.de/conferences/2014inChatham>

3 RESULTS

These are recorded with the same headings as in the method section.

3.1 Data collection at the 'People and Coppice' conference

Delegates' responses to the question 'what is the key issue for coppice in your country?' are given in Table 1.

Table 1. The key issues for coppice in different countries

Country	Key issues for the coppice industry
Albania	50% of forest area; traditional working system
Belgium	small scale; expensive; biofuel high price compared to fossil fuels; land costs and harvesting
Bulgaria	legislation restricts coppicing; small sized forest ownerships
Denmark	no problems
Estonia	high cost of transport/harvesting; falling prices of woodchip and logs
Finland	cost of biofuels and harvesting technologies; competition of existing natural forests
Germany	coppice on low productivity land; high cost of harvesting; no management plans; biodiversity concerns
Greece	low management standards; grazing; forest fires
Ireland	little coppice; few markets; lack of knowledge; farmers increasingly interested in firewood
Italy	mechanised felling; small ownerships
Latvia	coppicing is traditional; natural regeneration of deciduous forest
Lithuania	finance, resources and knowledge of such practice
Poland	coppicing is not traditional; rarely used
Romania	conversion of high forest to coppice; increase of willow/poplar SRC
S Africa	mechanical harvesting and planting of rotational coppice
Slovakia	sector under-developed; market drivers favour fossil/nuclear over biofuels; high investment needed to compete with fossil fuel and nuclear companies
Spain	mechanised felling is progressing and improving but is still far from profitable; overstood coppice; poor market; length of supply chain
Sweden	low product price; coppice not near e.g. railway; large producers buy small woods; mechanisation causing lack of skilled cutters

The responses to each of the sessions was recorded by participants on pre-prepared forms, printed on green paper to distinguish them from other papers in the delegate packs. A summary of the responses is included in Table 2.

Table 2. Summary of 'green sheet' responses

Session 1 The Resource

Ancient Woodland Policy (presented by Dr Keith Kirby)

How is the heritage value of coppice taken into account in your country?

Most responded that it is not. The few who responded that heritage value was taken into account related this to specific small areas. The only exceptions, from Italy and Spain, related the heritage value to sustainable supply of firewood.

Protection of Coppice for Biodiversity (presented by Christine Reid)

How is the biodiversity/natural heritage value of coppice taken into account in your country?

Responses to this question diverged widely. Some reported a high level of legislative protection particularly in, for example SACs, while others stated that no value was attached to coppice as biodiversity was associated with high forest systems. Approximately equal numbers were in either camp.

Landscape and Economy - Coppice in the landscape (presented by Sally Marsh)

How is the coppice woodland management valued as part of the landscape and local economy?

Again the responses varied between two extremes. Some reported that coppice was of no value; one delegate stated that it costs money to harvest while others reported that it was very important to the local economy for fuel.

One alluded to non-timber forest products, such as mushrooms, being economically important. Few mentioned the landscape.

Session 2 Access to the Resource

Estimates of local woodland resource (presented by Matthew Woodcock)

How does your national forest service/government agency record coppice woodland?

The carrying out of regular forest inventories appeared to be the norm in most countries. However, many delegates seemed unclear as to how coppice was recorded and the precise definition of this woodland type.

On-going coppice survey (presented by Dr Debbie Bartlett)

(a voluntary initiative to try to establish how much coppice is in active management in Kent)

Do you have similar initiatives? Can you get figures for the area coppiced each year?

22 simply responded that they could not get this figure. Others were unsure. Four mentioned that some information could be derived from questionnaires sent to owners but these seemed to be small scale. Only one country (Albania) reported confidently that the Forestry Authority had the data.

Linking to Landowners – the agent's perspective (presented by Mike Bax)

(this presentation described the historical practice of selling standing coppice at auction and how this had now changed to a system of private contracts between the owner and coppice)

How do woodland owners and workers get together to achieve coppice management?

An interesting contrast emerged in the responses between those countries with large state owned contracting companies, those where coppice was small scale and harvested by the owners for their own use and those where there were effective owner associations that were able to arrange harvesting.

Session 2 Access to the Resource (continued)

The Local Woodland Register (presented by Alan Sage)
(an on-line resource listing those wanting wood and owners wanting their coppice cut)

Would this be an idea that would work in your country? Is there something similar already?

Representatives from Germany, Croatia, Bulgaria and Poland reported that there were databases of owners; some others mentioned there were people who put people in touch but it was a new idea to the majority. Some felt it would work while others felt the coppice resource was too small.

Session 3 The People Involved

Small Woodland Owners Group (presented by Judith Millidge)

It was at this point that responses began to trail off. Some pointed out most coppice was in public ownership, while others identified the problem that no owners can be traced for many abandoned coppices. The issue of restitution, where coppice is returned to private ownership, was also mentioned. One comment was “this is too beautiful to be true!”. 17 left this section blank.

Views of Small Woodland Owners (presented by Matt Pitts)

This revealed a marked contrast with many of the delegates, mostly forestry specialists in academic institutions, finding it difficult to believe that people would buy woodlands for recreational/pleasure reasons. The importance of production was emphasised by many, although a few recognised that the younger generation inheriting woodlands were more likely to appreciate the wider range of woodland services that coppice can deliver.

The Local Authority Perspective – managing publicly owned coppice for recreation and amenity (presented by Tim Bell)

This seemed a rather unusual idea to the forestry audience with few commenting. The idea of harvesting coppice in a public park was considered unusual and the comment made that such parks tend to be heavily subsidised.

Contracting issues in a range of woodlands – The view from a contractor working in East Sussex and Kent (presented by Nick Hilton)

Those that wrote comments in response to this presentation were highly complementary, mentioning entrepreneurial skills and the importance of this to the industry. One said “Practical presentation. This kind of people should be more invited to scientific conferences to show the big issues...“.

Wood fuel manufacture and supply – view from a local log producer and supplier (presented by Mike Gilman)

This generated some interest as an example of a highly organised approach to supply, however others felt that wood fuel production and marketing was small scale and happened without intervention.

Chestnut fencing manufacturing – the view from a long-established Surrey-based company (presented by Steve Homewood)

This elicited a response from delegates from chestnut growing countries, although this type of fencing was new to them (demonstrated during the field trip).

Surrey and Sussex Coppice Group – coppice cutters working together (presented by Chris Letchford)
This produced few responses but the approach was not familiar to those who did comment.

The completion rate of these sheets declined dramatically as the day progressed (see Figure 1) and as the topics moved from conventional forestry topics into socio-economic areas that were perhaps less familiar to the delegates.

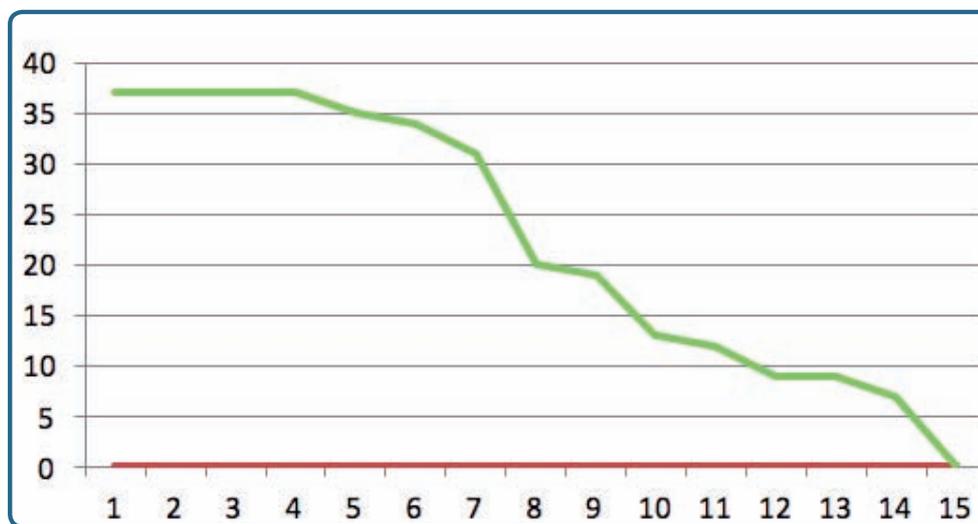


Figure 1. Number of responses to each of the presentations

3.2 The Fact Sheet²

The research undertaken to produce the factsheet identified that, in general coppice is not included in forestry frameworks at international or national level. The exception is in those countries where there is a policy to convert coppice to high forest. It also revealed significant areas of uncertainty, including a lack of robust statistics on the area of coppice and how much is actively managed. It was found that coppice was not always included in management plans and that key issues were coppice ownership, markets for coppice products and the coppice workforce (EuroCoppice Working Group 5, 2017).

3.3 Modelling to understand future scenarios

The initial work by WG5 clearly identified that complex factors influence decision making in coppice management and that the context varies considerably between countries. The first step in developing a model was to list these factors and classify them according to their likely impact (see Figure 2).

The next step was to identify and list all the potential interactions between agents (for information on terminology see Gomez-Martin, 2017). This process can enable the building of a model that enables the impact of manipulating different elements in the system to be seen. An illustration is provided in Figure 3.

² For the full fact sheet see <https://www.eurocoppice.uni-freiburg.de/intern/pdf/deliverables/socio-economic>

FACTORS INFLUENCING COPPICE MANAGEMENT		
Positive	Negative	Context
Subsidies to recoppice Subsides for equipment	Seasonal restrictions Subsides to convert into high forest Thought that high forest is more 'close to nature'	Policy context
Biomass fuel demand	New materials substituing small-diameter wood Alternatives sources of fuel	Demand
	Emigration to cities New owners with recreational focus Low price of coppice land compared with agricultural land	Ownership
Increase productivity/profitability	Damage to wildlife and cultural heritage Loans/interest rate burden (total labor costs: taxes, insurance...)	Mechanisation
Family groups Coppicing can be a 'life style choice'	Lack of skilled people Low wages Physically hard work	Workforce
Certification increases demand Local markets Co-operatives/Co-operative working	Cost of certification Distance to markets Low capital investment	Supply chain
	Deer browsing Novel diseases	Pest and diseases

Figure 2. Factors affecting coppice management
(Source: Gómez Martín, 2017)

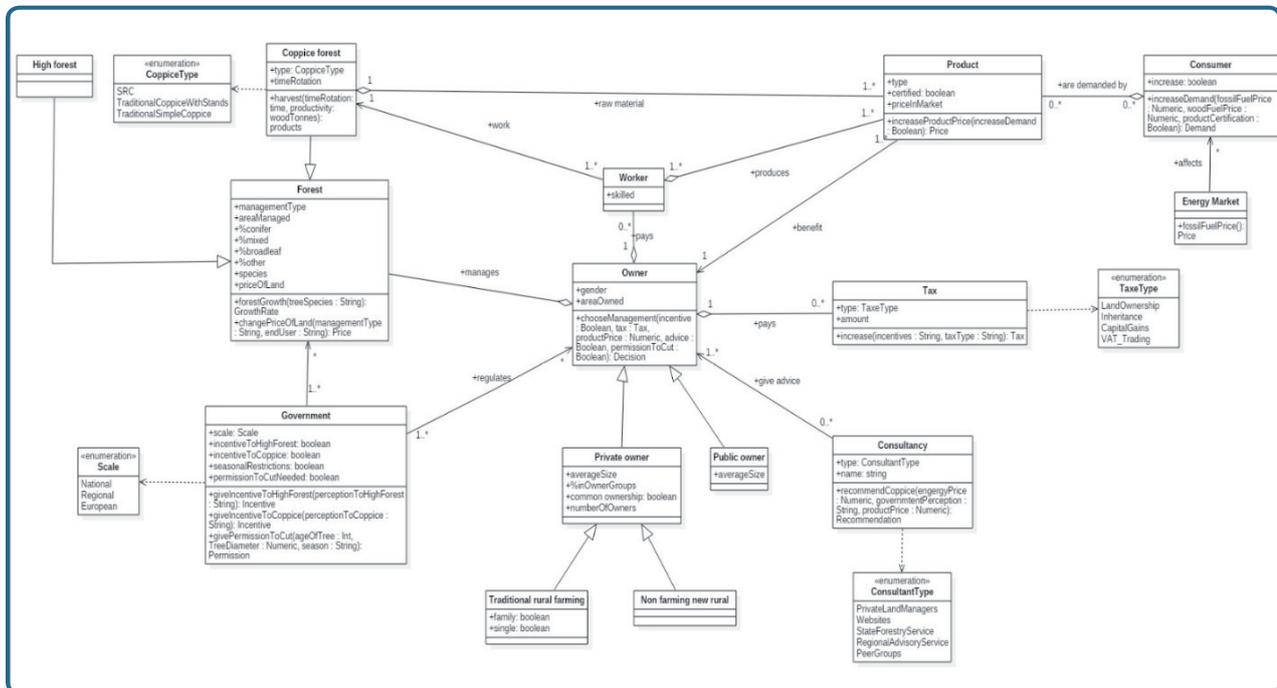


Figure 3. Class Diagram representing the coppice system
(Source: Gómez Martín, 2017)

4 DISCUSSION

While the first meeting of Working Group 5, in Florence, Italy, provided the opportunity for an initial 'brainstorming' of ideas, it was the second conference, in Chatham, England, that was the first chance to begin to gather data. The programme was designed to demonstrate the levels of governance and begin to understand the context in which decisions affecting the coppice sector are made. The rationale was that understanding the current situation is vital as a pre-requisite for proposing any actions. The participatory element, the use of flip charts to identify the key issue for coppice in each country (Table 1) and the responses made by delegates to each of the presentations (Table 2) effectively demonstrated firstly, that there are significant differences between countries about virtually every aspect of coppice, and secondly, that basic information about the resource is lacking.

A detailed investigation into the issues affecting coppice was undertaken, focusing on the countries represented in the Working Group, and this further emphasised the differences between countries. However, there were some common features, notably the lack of significant reference to coppice legislation and policy, and uncertainty regarding statistics (EuroCoppice Working Group 5, 2017). The conclusion reached was that more information about governance issues would be needed to inform development of a modern multifunctional coppice system.

The fact sheet identified a list of questions, included below, as the basis for further research:

- Will the prevalence of the policy to convert to high forest impact on small scale private owners as well as public ones?
- To what extent will this trend towards conversion be influenced by the availability of funding?

- Does the apparent lack of coppice specific policy at national level originate in the regional, rather than general, distribution of coppice?
- How significant is the demand for fire/fuel wood and specialist products?
- What effects do nature conservation, landscape, amenity and ecosystem service provision agendas have?
- What effects will the increasing interest in ecosystem services at international/national and local levels have on coppice?
- How effective are the knowledge transfer networks, for example between owners, coppice workers, extension services and the end market?

While these questions are general and, if explored in depth, would increase the broad understanding of coppice forest management, specific research is also needed on a country by country (and potentially regional) basis. Agent Based Modelling was identified as a potential method to enable greater understanding of the governance issues and of predicting the impact of interventions. A basic model has been developed (Figure 3) but more work is required to develop this further and also create a sequence diagram describing how the objects interact over time. Models are only as good as the data put into them, and the next step is to develop a method of capturing accurate data about each aspect of the system in the class diagram. This will need to be done for each country separately and, on the basis of the gaps in information previously identified, this is not likely to be a simple task. However, this will enable different scenarios to be explored, and the impact of interventions assessed, to inform the future management of coppice forest in Europe.

5 CONCLUSION AND RECOMMENDATIONS

A final output of COST Action FP1301 EuroCoppice was a paper intended to raise awareness among policy and decision makers of the unique characteristics of coppice forests and the valuable contribution these make to society, economy and the environment, by contributing to, for example:

Rural livelihoods: regular income, sustainable employment & resources

Low-carbon bioeconomy: renewable, sustainable, environmentally friendly biomaterials & fuels

Protective function: mitigates soil erosion, rockfall, landslides & avalanches

Sharing economy: community use & recreation

Provision: timber & non-timber forest products

Enrichment: biodiversity & cultural landscapes

See the ‘Summary for Policy Makers’, pages xiv-xv of this volume.

This paper has identified that, while endorsing the general characteristics of coppice, as stated above, there are wide differences between countries in the factors that affect decision making with respect to coppice.

The most significant barrier to development of coppice is simply the lack of robust data about coppice. Agent Based Modelling has been identified as a method that could enable greater understanding of the interactions inherent in the coppice system, such as the legislative framework, land ownership, markets and workers. It is recommended that this approach is developed, using sample countries as case studies, to identify potential barriers to persistence and development of small scale coppice forest management in Europe.

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APPENDIX - EXAMPLE OF GREEN SHEET RESPONSES

Ancient Woodland Policy (presented by Dr Keith Kirby)

How is the heritage value of coppice taken into account in your country?

Albania	Coppice forest, which covers about 60% of the land is traditional with great historical value.
Belgium	?
Bulgaria	By including them (or part of them) into Natura 2000
Croatia	Only small scale forest owners value coppice, as they use it for fuelwood, big owners and the state are not interested due to the lack of market for coppice products
England	On protected areas historic coppice landscape features (old stools and notable/veteran trees) are identified so future management does not damage them.
England	It is
Estonia	The main aim of coppice- to get firewood - has been maintained through centuries
Finland	<i>Corylus avellana</i> coppice in south Finland are considered to be part of heritage.
Germany	Few know what coppice is although widely used ~80 years ago the knowledge is lost
Germany	Experts/scientists have similar views as K Kirby but others believe it to be 'less valuable' as there are no big trees and that clear cuts of coppice is 'bad', destroying the forest
Greece	Those who moved to the countryside in search of a better career are reviving interest in 'traditional' products
Ireland	There is very little coppice in Ireland. I will check if any heritage areas have coppice
Italy	Most broadleaved woodlands could be classed as ancient but there is no institutional recognition or cataloguing
Italy	The heritage value of coppice is mainly at scientific level and not usually considered at all in practice; only some public forest managers consider this aspect.
Italy	Existing law regulation and voluntary protocols
Italy	Quite high. We have protective legislation firewood is very important coppice is considered for sustainable supply
Latvia	Huge in regeneration of deciduous trees forest. SRC as willow twigs for handicrafts. Small islands in meadows, river banks
Netherlands	Heritage is probably the most important value of Dutch coppice forests directly followed by biodiversity. This is not taken into account in management
Poland	Extensive form of FM (forest management?)
Poland	Heritage value of coppice is very low. It only exists in small protected areas (e.g. wetlands) with limited access
Poland	Coppice is not promoted and the values are not widely known and shared
Portugal	Coppice is view(ed) as a type of management to obtain small sized wood, originally around/close to rural communities (e.g. wood for fences, tools, firewood)
Romania	Almost lost. Coppice is not considered (except <i>poplar</i> , <i>salix</i> and <i>robinia</i>). Forestry legislative framework is to convert to high forest
Romania	Coppice has been converted to high forest (except <i>Robina pseudoacacia</i> , <i>Salix</i> sp and <i>Poplar</i> sp) so there is no heritage value
Romania	Little coppice and the heritage value is not considered. The main need is for the wood production
S Africa	Essentially not. However recognised and understood by communities
S Africa	Not at all
Slovenia	There is no special value of coppice forests
Slovenia	I do not think the heritage value of coppice is taken into account at all in Slovenia
Spain	Most coppice is abandoned; accumulated biomass is an under-utilised natural resource
Spain	For centuries it has been our main source of fuel and heating so it is much appreciated
Sweden	Through nature conservation and restoration, small areas
Sweden	The heritage value of coppice has been lost; it is completely unknown as an important part of the traditional economic system. Only people with skills in the traditional alpine culture feel the importance in terms of heritage. Few remain in contact with traditional rural activities (vine cultivation, collecting firewood) and so continue to exploit little coppice areas
Sweden	The tradition was lost between 1960 and 2000, but it is now coming back strongly (especially in chestnut) due to the need of products such as poles and energy wood.
Sweden	I only know one small area of hazel that has been coppiced for cattle fodder.
Switzerland	Coppice/woodland is undervalued and largely forgotten. Woodland in general is neglected, over grazed, fragmented and unmanaged. Most woodland is even aged

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